

PROJECT NUMBER: 1810
PROJECT TITLE: Project ART
PROJECT LEADER: Ravi Prasad
PERIOD COVERED: June, 1988

PROJECT ART

A. Objective: To support Commercial Plant Design and Flavor Development objectives at the Bermuda Hundred Pilot Plant.

B. Results: Further optimization of the absorber column efficiency continued. Citric acid was tested as an alternate nicotine entrapment medium to replace potassium citrate. A CRS absorber column, @ 8% citric acid and 35% OV, was found to give excellent entrapment of nicotine from supercritical CO₂. The citric acid application on stems has shown improved stem subjectives. A decision on conversion to citric acid will be made upon completion of analytical, corrosion, and subjective testing.

Marlboro blend with the ET portion replaced by DBC Bright was nicotine reduced by 95% using standard pilot plant conditions, i.e., 3800 psi, 140°F, 200 M/M. The extracted filler was sent for flavor evaluation.

The on-line nicotine monitor continues to run without any major problems. The monitor was used on two occasions to determine the "completion" of filler extraction. Pilot plant runs #88-166 and 88-167 were stopped at 160 to 170 M/M, based on the nicotine monitor output at a steady nicotine level in CO₂ of 10 ppm. Both runs gave 97% nicotine reduction.

Ongoing support of Engineering was continued via making of filler clumps in special "downflow" runs to simulate the worst case scenario. The clumps produced were supplied for downstream tobacco processing, i.e., the design of hoppers/conveyors/separators.

An all day training session was conducted at the request of the Commercial Plant personnel. Initial feedback indicated that the training session was useful and well received.

C. Plans: Continue optimization of absorber bed via optimization of citric acid application level, stem OV and particle size. Support Flavor Development and Commercial Plant design activities.